Performance Outcomes Beyond the Mainstream: Mapping Accessibility Metrics for States and Regions, Minnesota DOT and University of Minnesota

Background

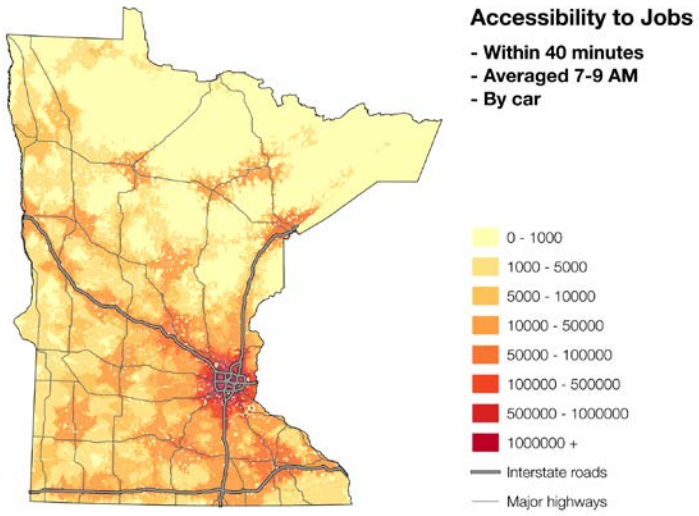
On June 20, 2014 the Transportation Research Board's Statewide Multimodal Planning Committee partnered with the Federal Highway Administration (FHWA) and the American Association of State Highway Transportation Officials (AASHTO) to hold a one-day peer exchange in Scottsdale, Arizona on performance measurement of accessibility, economic development, and health impacts of transportation. Andrew Owen of the Accessibility at the University of Minnesota and Brian McLafferty of the Minnesota Department of Transportation presented on the topic of accessibility.

Overview

The University of Minnesota (UMN) and the Minnesota Department of Transportation (MnDOT) have entered into a long-term partnership around accessibility. MnDOT considers accessibility to destinations to be a key purpose of transportation and aims to: 1) look beyond mobility and congestion as transportation measures, 2) support the agency's vision for transportation outcomes, and 3) develop a multi-modal approach to planning and performance measures.

The University of Minnesota, in accordance with MnDOT's goals, has created a standardized data platform that can be utilized to assess and map accessibility in a variety of different ways. These include (but are not limited to):

- Accessibility to jobs within 40 minutes by car
- Accessibility to jobs within 20 minutes by car (AM peak period)
- Accessibility to jobs within 20 minutes by transit (AM peak period)
- Worker-weighted 20 minute accessibility to jobs by auto
- Ratio of jobs accessible within 40 minutes of transit to jobs accessible within 40 minutes by car
- Change in accessibility to jobs within 30 minutes by car between 2000-2013



Accessibility is calculated at the census block level using land use and transportation data from the U.S. Census Bureau, MnDOT, and the Twin Cities Metropolitan Council. The calculations are based on observed, rather than predicted transportation patterns and can be used to visualize multiple metrics and maps for several travel time thresholds, based on typical commuting times. The transit trip times are derived from the General Transit Feed Service (GTFS) data and the calculations take access time and in-vehicle time into account.

Challenges and Considerations in Implementation

While MnDOT is not yet incorporating this data into the decision making process, it is considering using it in the project selection process. Specifically, accessibility measures could help suggest some low cost/high benefit investments in congestion management.

Additionally, the University of Minnesota has had some conversations with municipal governments about using their accessibility data. However, just as transportation agencies can be hesitant to use accessibility performance measures when they do not fully control land use, these agencies are hesitant to use accessibility performance measures when they do not fully control transportation. Yet, standardized accessibility information can at least provide a common basis for conversations between transportation and land use agencies.

The University of Minnesota's Accessibility Observatory provides significant data for accessibility measurement across the nation that is available to subscribers through the Access Across America annual report.

The peer exchange summary report can be found at: http://www.planning.dot.gov/Peer/Arizona/scottsdale_6-20-14_performance_outcomes.pdf